COUNTY OF SAN LUIS OBISPO BOARD OF SUPERVISORS
AGENDA ITEM TRANSMITTAL

(1) DEPARTMENT	(2) MEETING DATE	(3) CONTACT/PHONE
Office of Emergency Services	3/13/2012	Ron Alsop (805) 781-5011

(4) SUBJECT
Presentation on Emergency Planning and Readiness Activities

(5) RECOMMENDED ACTION It is recommended that the Board accept and receive a presentation led by the Office of Emergency Services on earthquake, tsunami and nuclear power plant readiness activities.

(6) FUNDING SOURCE(S)	(7) CURRENT YEAR FINANCIAL IMPACT	(8) ANNUAL FINANCIAL IMPACT	(9) BUDGETED?
N/A	$0.00	$0.00	Yes

(10) AGENDA PLACEMENT
{ } Consent **{ }** Presentation (Time Est._____) **{ }** Hearing (Time Est. _____) **{ x }** Board Business

(11) EXECUTED DOCUMENTS
{ } Resolutions **{ }** Contracts
{ } Ordinances **{ x }** N/A

(12) BUDGET ADJUSTMENT REQUIRED?
BAR ID Number:
{ } 4/5th's Vote Required **{ x }** N/A

(13) OUTLINE AGREEMENT REQUISITION NUMBER (OAR)
N/A

(14) W-9
{ x } No **{ }** Yes

(15) LOCATION MAP	(16) BUSINESS IMPACT STATEMENT?	(17) AGENDA ITEM HISTORY
N/A	No	**{ x }** N/A Date _____

(18) ADMINISTRATIVE OFFICE REVIEW

(19) SUPERVISOR DISTRICT(S)
All Districts -

County of San Luis Obispo

TO: Board of Supervisors

FROM: Office of Emergency Services / Ron Alsop
(805) 781-5011

DATE: 3/13/2012

SUBJECT: Presentation on Emergency Planning and Readiness Activities

RECOMMENDATION

It is recommended that the Board accept and receive a presentation led by the Office of Emergency Services on earthquake, tsunami and nuclear power plant readiness activities.

DISCUSSION

This presentation is a follow up to presentations made to the Board of Supervisors following the Japan earthquake, tsunami, and nuclear power plant emergency that occurred due to the events on and after March 11, 2011.

The magnitude 9.0 earthquake on March 11, 2011 occurred near the northeast coast of Honshu, Japan. The earthquake originated from a thrust fault separating two tectonic plates resulting in a series of tsunamis and in turn an estimated 20,000 fatalities as well as extensive damages, including to Fukushima nuclear power plants. Approximately 90% of the deaths were reported to be caused by drowning.

This presentation is intended to concentrate on local emergency management planning and other activities that may have lessons learned or otherwise have or will result in changes due to following the events in Japan. In addition, not only are there lessons to be learned but the events and actions following the earthquake, tsunami, and nuclear power plant disasters also affirmed actions that were already under way as part of the ongoing process of emergency readiness improvements.

While this report concentrates and covers overall emergency management planning and related activities, separately there can be lessons learned for actual field level response activities, such as fire operations in response to events at the Fukushima nuclear power plant facilities.

Nuclear Power Plant Emergency Planning

To more fully understand the nuclear power plant emergency planning process, it may be helpful to first describe and discuss to the two distinct planning zones as defined by federal guidelines and requirements. The Federal Emergency Management Agency (FEMA) characterizes the risk area around a nuclear plant as two zones, one known as the Emergency Planning Zone and the other as the Ingestion Pathway Zone. In San Luis Obispo County, we have a third planning area, called the Public Education Zone.

The Emergency Planning Zone (EPZ) is the area directly surrounding the nuclear power plant that may be expected to take protective action should an emergency occur. For all commercial nuclear power plants in the United States, this area is designated by federal requirements as a 10 mile radius around the power plant. However, when the local and state nuclear power emergency planning process for Diablo Canyon was developed, local and state authorities decided to

increase our EPZ to an area that is about twice the federally required EPZ. Our overall EPZ extends for over 18 miles to the north of Diablo Canyon, just over 22 miles to the south, and up to 14 ½ miles to the east. As a result, our local and the related state nuclear power plant emergency plans and procedures outline predetermined protective actions for the entire extended size EPZ to reduce or prevent exposure of radioactive particles to the general public.

The Ingestion Pathway Zone (IPZ) is a 50 mile radius around the power plant. The area of the IPZ that extends beyond the EPZ is not expected to take any protective actions such as evacuation or sheltering in place following an emergency at the power plant, but may be asked to take some agricultural and other related precautions. Following a release of radioactive material, plans are in place to hold or quarantine food and water products for testing. The intent of this testing would be to prevent any contaminated items from entering the food supply. As we have seen, this is one of the many issues of concern in Japan.

The Public Education Zone (PEZ) stretches beyond the Emergency Planning Zone. Although this zone is not expected to need to take any protective actions, public information and education is provided on an annual basis. To the south the PEZ stretches about 6 miles beyond the EPZ, at its furthest point north over one mile beyond the EPZ, and over 5 miles past the EPZ to the east.

While emergency planning guidance and efforts related to nuclear power plants in the United States are dictated by federal and state requirements, local agencies and locally based state agencies here and near San Luis Obispo County are constantly working on our readiness efforts, including ongoing emergency planning. Since the date of the initial emergency preparedness exercise for Diablo Canyon in August 1981, and the formal submission of the State of California and involved local jurisdictions emergency response plans for the Diablo Canyon Power Plant in April 1988, local agencies including the County have been constantly updating and revising our plans and procedures, as well as testing them through drills and exercises.

Evacuation Times Estimate Planning Update

Among the ongoing revisions, and related to a key issue in Japan, is evacuation planning for potentially affected areas. Such planning includes taking into consideration not only the number of residents, but also the number of visitors who may be in the area on a weekend or holiday, thus possibly increasing evacuation time. Also taken into consideration are conditions such as heavy rain and the occurrence of a damaging earthquake. To help plan for how long it may take to evacuate areas around nuclear power plants, one of the federal planning requirements is to have an Evacuation Times Assessment in place, which is also commonly referred to as Evacuation Times Estimate (ETE).

While some nuclear power plants in the United States have not updated their ETEs since the plants began operation, here in San Luis Obispo County we have done so a number of times since Diablo Canyon has been in operation. As the lessons learned continue to come out of Fukushima, one result at the national level is the requirement that nuclear power plants in the United States must update their Evacuation Times Estimate within 30 months. However, our ETE is already currently being updated through a process which formally started in 2010, in anticipation of the completion of the U.S. Census and the availability of updated population figures. The firm hired by PG&E to conduct the ETE anticipates having a draft completed by summer. The firm is working both with the County and PG&E on the update.

As part of this ETE update process locally, in March 2011 an updated analysis was completed to assess estimated impacts to evacuation times following a combined earthquake and radiological emergency at the Diablo Canyon. Our ETE is modeling a minimum of out to 20 miles in all directions, which is twice the federal regulation requirement of 10 miles.

Plume Monitoring Improvements

An additional aspect related to proper evacuation planning is projecting or modeling where a release of radiation from Diablo Canyon will travel through the atmosphere. This process, called plume modeling, is important due to the need to know which areas should be evacuated. As part of the ongoing process to improve and enhance emergency readiness, the San Luis Obispo County Air Pollution Control District has worked closely with PG&E over the past few years to define and implement much needed enhancements to the complex plume modeling system and meteorological data network used by the County Emergency Operations Center to predict the plume path and potential radiological concentration in the event of a radiation release from Diablo Canyon. As a result, PG&E has significantly upgraded the capabilities of the software plume dispersion model and re-installed new specialized atmospheric profilers to measure air temperatures and wind speeds aloft in the lower layer of the atmosphere. Understanding the vertical wind and temperature profile of the

lower atmosphere is critical to accurately model where and in what concentration particles from a release may be deposited and where to best direct our resources and monitoring efforts. These enhancements have dramatically improved our emergency response capabilities in that regard.

Ingestion Pathway Planning Improvements

While information coming out of Japan will certainly be utilized in regards to planning for the Ingestion Pathway Zone, prior to March 11, 2011 the County has been enhancing agricultural procedures, developing new public information materials for the agricultural community, and remapping the Ingestion Pathway Zone. These enhancements will also include mechanisms to allow reentry into evacuated areas under certain circumstances. To ensure effective response during an emergency, the county will conduct outreach to neighboring counties as well as local producers, ranchers, farmers, and livestock owners to discuss the improvements. This is a process the County is working on with the Agriculture Commissioner's Office of San Luis Obispo and Santa Barbara Counties, the California Department of Public Health, and the California Emergency Management Agency. Since the IPZ also touches portions of Kern and Monterey Counties they are also being included in the IPZ planning process.

Training, Drills, and Exercises

The various agencies involved with nuclear power plant emergency planning also receive ongoing training, and our plans and procedures are tested in emergency drills and exercises.

In calendar year 2011, 5,576 hours of training were conducted through OES and related agencies. Utilities and state & local government representatives participated in training sessions covering various aspects of the training categories identified in federal regulations, including accident assessment, decision making, emergency worker roles, local support services, public information, radiological monitoring, and medical.

In addition to numerous ongoing smaller drills, a large full scale federally evaluated exercise was most recently conducted in August 2010 to assess the capabilities of state and local emergency preparedness organizations in implementing our emergency response plans and procedures to protect the public health and safety during a radiological emergency involving Diablo Canyon. That federally evaluated exercise resulted in no deficiencies or areas requiring corrective action, as determined by FEMA. In the exercise report, FEMA noted the off-site radiological emergency response plans for the state of California and the affected local jurisdictions site-specific to Diablo Canyon can be implemented, and are adequate to provide reasonable assurance that appropriate measures can be taken off-site to protect the health and safety of the public in the event of a radiological emergency. The exercise was overseen by over two dozen FEMA staff and FEMA contracted evaluators.

As noted above, the County and other agencies have conducted smaller drills and exercises, with a noted recent FEMA evaluated exercise being held in December 2011 in northern Santa Barbara County to test our emergency monitoring and decontamination procedures for people who may be evacuated in the event of a radiological release.

New Emergency Planning Regulations

On top of the lessons learned from Fukushima, for the past few years the federal government has been in the process of updating their requirements to enhance emergency planning and preparedness for nuclear power plants in the U.S. While the timing is happenstance, in December 2011 both the Nuclear Regulatory Commission and Federal Emergency Management Agency enacted new emergency planning regulations. These new requirements had been under development for a number of years. A two day presentation on the new requirements presented by the NRC and FEMA was attended by a County OES representative.

Another aspect of lessons learned is actually an issue brought to light that has already been an ongoing challenge, which is effectively communicating radiation risk to the public during nuclear accidents. We have emergency news releases and Emergency Alert System messages ready to release promptly in the event of a nuclear power plant emergency, and a Joint Information Center for providing face-to-face information to the news media. County OES is also working on integrating social media into the emergency public information systems. Reports following the Japan earthquake and subsequent tsunami indicate that social media tools were useful in providing information to the population. Pre-establishing these social media tools will further increase their effectiveness and provide an additional venue of and for public information.

In addition to monitoring reports and receiving information remotely, County OES is interested in actively participating in lessons learned from Fukushima. An OES representative attended a presentation in Sacramento with a speaker from Tokyo Electric Power Company in January and two OES staff members will be attending the nationwide National Radiological Emergency Preparedness Conference out of state next month, at which multiple sessions on various aspects of Fukushima and emergency management and related response with be presented.

Tsunami Emergency Planning

Fortunately, the majority of CA is not directly affected by a subduction zone, where two convergent tectonic plates slide under one another. Although tsunamis can be triggered by other types of earthquakes, landslides, and even volcanic eruptions, earthquakes on subduction zones are typically the cause of larger tsunamis.

San Luis Obispo County has a tsunami emergency response plan that provides guidance and direction for coastal jurisdictions and agencies following a tsunami watch, advisory, or warning.

With the help of federal Homeland Security Grant funds, the county was able to develop tsunami emergency response guides for first responders to use when evacuating coastal areas and for general emergency planning and reference purposes. These guides, known as preplans, were distributed in 2011.

The existing tsunami emergency response plan was developed cooperatively with input by representatives from coastal jurisdictions and agencies, including State Parks, the California Highway Patrol, and coastal cities. After March 11, 2011, these agencies met for an after action review of the tsunami warning response and to provide input on the plan. As a result the plan was updated with the concurrence of the coastal jurisdiction representatives.

As the tsunami hit Japan and receded from land it washed much of what was in the inundation zone into the ocean. While heavier materials sank closer to shore, buoyant materials went on to create debris fields that have been seen in satellite imagery and aerial photos of the waters surrounding Japan.

However, there is still a large amount of uncertainty over exactly what is still floating, where it's located, where it will go, and when it will arrive. Winds and ocean currents scattered items in the massive North Pacific Ocean and scientists predict some of the debris may eventually reach U.S. coasts.

NOAA and its federal and non-federal partners, including the U.S. Fish and Wildlife Service and U.S. EPA, are leading efforts to collect data and assess the debris and possible impacts to protect our natural resources and coasts.

Scientists are relying on computer models to predict the debris path and drift rate. Independent models run by NOAA and University of Hawaii indicate that some debris could soon pass near or wash ashore in the Northwestern Hawaiian Islands. From there, the leading edge of the debris field could make it to the Pacific Northwest and Alaska sometime next year and then circle back to the main Hawaiian Islands in 2014 to 2016.

Although the impact to California will be minimal to none, this is an issue that will be monitored and tracked as additional information becomes available as the debris proceeds across the Pacific. No radiological impacts are expected since the damage done by the tsunami waves washed the debris out to sea before the nuclear power plants released radioactive materials. However, as part of the planning process, radiological monitoring of debris can be implemented as more information develops.

Earthquake Emergency Planning

The Japan earthquake and resulting failure of one dam did affirm the necessity of the County's earthquake plan and dam and levee failure plan. Our earthquake plan outlines procedures that call for immediate assessment of the integrity of local dams and levees to ensure secondary hazards such as dam failures can be mitigated. Per the information coming out of Japan following the earthquake, dams generally performed as designed with only minor or moderate cracking occurring at embankment dams. However, one non-regulated 60 foot high earthen filled irrigation dam did fail, killing at least seven people and causing extensive property damage. This affirms our plan to check the status of dams as a first priority action item after a damaging or large earthquake.

OTHER AGENCY INVOLVEMENT/IMPACT

While preparedness for this presentation was led by the Office of Emergency Services there are many other agencies involved in emergency management, preparedness and coordination. They include, but are not limited to, various County departments including Public Works, General Services, Sheriff's Department, County Fire, Public Health including Environmental Health, Social Services, Planning, related agencies such as APCD, Regional Transit Authority, incorporated cities, County Office of Education, local school districts, Port San Luis, State Parks, CHP, Caltrans, California Emergency Management Agency, PG&E, and many other entities.

FINANCIAL CONSIDERATIONS

There is no cost to this presentation other than already budgeted staff time to develop and present the information.

RESULTS

To help ensure the interests of the county and its citizens are met through increased preparation of public safety, emergency management, public health, and related agencies for response to many types of emergencies.

.